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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,915	10/31/2003	Guoxiang Zhou	27371-1	2983

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EXAMINER

BONK, TERESA

ART UNIT	PAPER NUMBER
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3725

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/698,915

Applicant(s)

ZHOU, GUOXIANG

Examiner

Teresa M. Bonk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5, 8, 9, 11, 14-17, 19, 20, 22-24, 26, 29, 30, 32, 35-38 and 40-55 is/are pending in the application.
- 4a) Of the above claim(s) 43-55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 8, 9, 11, 14-17, 19, 20, 22-24, 26, 29, 30, 32, 35-38 and 40-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 22-24, 26, 29-30, 32, 38, and 40-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Berto et al. (US Patent 3,343,250). Berto et al. disclose a thin-walled, stainless steel tube having a polygonal cross-section and a desired curvature along its longitudinal axis, see Figure 3. The term “thin-walled” is merely a relative term that does not distinguish over Berto’s wall thickness, which could be increased. It is noted that these product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps, see MPEP 2213.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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4. Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berto et al. in view of Ooyaucki et al. (US Patent 6,883,552). Berto et al. discloses the invention substantially as claimed except for the tube's particular thickness. Ooyauchi et al. discloses a stainless steel tube having a thickness of 0.1 mm (Column 8, lines 31-32). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Ooyauchi's tube material in order to achieve a desired product (Column 1, lines 13-17).

5. Claims 1-3, 5, 9, 11, 14-16, 22-24, 26, 30, 32, 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (US Patent 5,55,762) in view of Ooyaucki et al. (US Patent 6,883,552). Kawamura et al. discloses a method of bending a metal tube having a desired curvature and a cross-section that is circular, polygonal, or quadrilateral (Column 1, lines 9-10). The method includes having a step that reinforces a portion of the tube with a core (filling material S) that allows the portion to bend, but resists buckling of the tube walls and bending the reinforced portion of the tube. The method also includes inserting into the tube a longitudinally bendable core (S) that resists transverse compression, whereby the core redistributes transverse forces applied to the portion. The method includes reinforcing a portion of the tube with a core includes filling the portion with granules/sand (Column 1, lines 18-25). The method includes sealing (steel plate P3) at least one end of the portion to discourage the core from coming out of the portion (Column 4, lines 22-23). Further comprising removing the core after bending the reinforced portion of the tube. (Column 4, lines 12-13). Kawamura et al. also discloses rolling the portion between a roller (roll mold 1) and fixed structures (clamp mold 2 and pressure mold 4) that define between them a path have a desired curvature.

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Kawamura et al. discloses the invention substantially except a specific material and material thickness for the tube. Ooyauchi et al. discloses a stainless steel tube having a thickness of 0.1 mm (Column 8, lines 31-32). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Ooyauchi's tube material in order to achieve a desired product (Column 1, lines 13-17).

Applicant's arguments filed September 13, 2006 have been fully considered but they are not persuasive, in particular the applicant states that Kawamura does not disclose the use of a liquid core. It should first be noted that the claims do not require a liquid core, only that the core be one of either granules, liquid, or sprung mechanism. It should also be noted that the claim does not require the core to remain in the liquid state throughout the entire bending process.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine Ooyaucki is found in the knowledge generally available to one of ordinary skill in the art of metal tubes and their particular types of metal and thicknesses. That is, the Kawamura reference demonstrates a metallic tube and Ooyaucki reference discloses a particular type of metallic tube.

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6. Claims 8 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. and Ooyaucki et al. in view of Berto et al. (US Patent 3,343,250). The combination of Kawamura et al. and Ooyaucki et al. discloses the invention substantially except for inserting a sprung mechanism/coil spring into the portion of the tube. Berto et al. discloses a tube bending method having a step for inserting a sprung mechanism/coil spring (spring support, Column 1, line 25) into the portion of the tube. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Berto et al.'s suggestion of a spring mechanism in order "to prevent crushing or deformation of the tubular material during the bending operation," (Column 1, lines 23-28). It is also noted that having a coil spring as a particular spring configuration is a mechanical equivalent. Berto et al. discloses that one skilled in the art considers it a familiarity to provide a spring support as a core and therefore, is not non-enabling as alleged in the applicant's arguments filed September 13, 2006, page 16.

7. Claims 17, 19-20, 38, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. and Ooyaucki et al. in view of Spath (US Patent 6,189,354). The combination of Kawamura et al. and Ooyaucki et al. discloses the invention substantially except for having a plurality of rollers to assist in the bending operation. Spath discloses a method for deforming a tube having rollers (13, 27-29) that define between them a path having a desired curvature including feeding the portion through a channel that is substantially congruent with the outside perimeter of the portion, see all figures. Regarding 19-20, the tube is located in channels between the ends of rollers (13, 27-29) and it is squared as it is bent. Therefore it would have been obvious to have use Spath's rollers to define the path of Kawamura in order "to prevent

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bulges and nicks of the section to be bent (and)... to achieve a required shape” (Column 1, lines 9-22).

Applicant’s remarks regarding the Spath reference have been noted but are not persuasive. Spath’s rollers clearly provide a channel as required by claim 17 and are located congruently against the outside perimeter because they coincide at all points when superimposed. Webster’s Dictionary defines ‘congruent’ as superposable so as to be coincident throughout.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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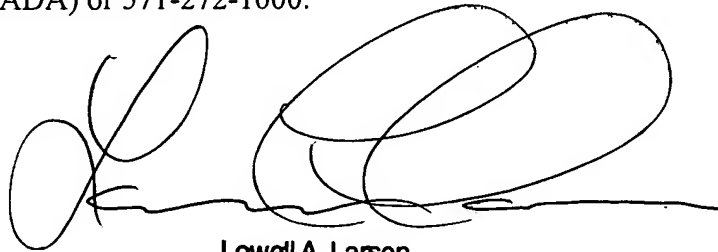
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa M. Bonk whose telephone number is (571) 272-1901. The examiner can normally be reached on M-F 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lowell Larson can be reached on (571) 272-4519. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Teresa M. Bonk  
Examiner  
Art unit 3725



Lowell A. Larson  
Primary Examiner